REMARKS

Claims 1-20 are pending in the application with Claims 1, 12, 16 and 19 as being independent claims. The Examiner has objected to the specification. The Examiner has also objected to Claim 18. The Examiner has rejected Claims 3-6 under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement. The Examiner then rejected Claims 1-2, 7, 9 and 19 under 35 U.S.C. §103(a) as being unpatentable over Uysal et al. (New Space-Time Block Codes for High Throughput Efficiency) in view of Boariu et al. (US Patent No. 6,865,237). Claim 16 is rejected under 35 U.S.C. §103(a) as being unpatentable over Applicant's Admitted Prior Art (APA) in view of Uysal et al. (New Space-Time Block Codes for High Throughput Efficiency). Claims 12-13 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over Claims 1, 2 and 10 of co-pending application No. 10/692,896.

Reconsideration of the application is respectfully requested.

It is gratefully acknowledged that Claims 8, 10, 14-15, 17 and 18 would be allowed if rewritten in independent form including all the limitations of the base claim and any intervening claims.

Uysal discloses a wireless communication scenario, where the base station is equipped with multiple transmit antennas and the mobile unit is equipped with a single receive antenna. At each time slot, transmission symbols are generated using the transmission matrix corresponding to the code under consideration, which are provided in the previous section, and then are transmitted simultaneously from the transmit antennas. The channel is assumed to be a flat Rayleigh fading channel, where the path gain from the m^{th} transmit antenna to the receive antenna is denoted by α_m. (See p. 1106, A. Simulation results).

Regarding the objections to the specification, the requested corrections are provided herewith. Withdrawal of the objections is respectfully requested.

Regarding the objection to Claim 18, it has been amended to overcome the objection. Withdrawal of the objection is respectfully requested.

Regarding the rejection of Claims 3-6 under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement, Claim 3 is cancelled and Claims 4-6 have been amended to depend on Claim 2, therefore, the objection is moot.

Regarding the rejection of Claims 1-2, 7, 9 and 19 under 35 U.S.C. §103(a) as being unpatentable over Uysal et al. (New Space-Time Block Codes for High Throughput Efficiency) in view of Boariu et al. (US Patent No. 6,865,237), to establish a prima facie case of obviousness under 35 U.S.C. §103(a) based upon a combination of references, the cited combination of references must disclose, teach or suggest all elements/features/steps of the claim at issue. *See, e.g., In re Dow Chemical*, 5 U.S.P.Q.2d 1529, 1531 (Fed. Cir. 1988) and *In re Keller*, 208 U.S.P.Q.2d 871, 881(C.C.P.A. 1981). All of the claimed features of independent Claims 1 and 19 are not taught or suggested by the combination of *Uysal* and *Boariu* or by either reference alone.

More specifically, each of independent Claims 1 and 19 recites using **an encoder ensuring maximum diversity by grouping N input symbols into N combinations each including three symbols, by applying negating and conjugate to the symbols so that the N input symbols are transmitted only once from each antenna and at each time interval, and delivering the N combinations to the three transmission antennas for N time intervals**. However, *Uysal* does not even appear to be directed to a single transmission and at each time interval. Accordingly, no section of *Uysal* teaches "N input symbols are transmitted only once from each antenna and at each time interval, and delivering the N combinations to the three transmission antennas for N time intervals" as recited in independent Claims 1 and 19. The Examiner noted "Though Uysal et al. does not explicitly disclose a transmitter and encoder and delivering, such elements and the delivering would be inherent to one of ordinary skill in the art in a wireless communications scenario as taught by Uysal et al. (pg. 1106, III, Simulation Results). The Examiner acknowledged that *Uysal* does not specifically disclose the above limitation. See page 4 of Office Action. In relying upon the theory of

inherency, the Examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied art. See MPEP 2112 (IV). Inherency, however, may not be established by probabilities or possibilities. The Examiner failed to provide any fact and/or technical reasoning as provided by the rules. Therefore, the rejection is improper.

Furthermore, the Examiner incorrectly construed the claims of the present invention. Proper claim construction dictates that functional descriptive material be given patentable weight. As recited in Claims 1 and 19, N input symbols are transmitted only once from each antenna and at each time interval. Hence, the transmission act is functional and must be given patentable weight.

Therefore, the Examiner has failed to establish a prima facie case of obviousness because the reference fails to teach every aspect of the claimed invention as it must. Accordingly, Withdrawal of the rejection is respectfully requested.

Furthermore, Boariu in col. 41, lines 32-38 discloses that a phase rotation can be applied to the element consisting of a column. However, the present invention teaches phase-rotating a partial symbol selected from the N input symbols. Further, the phase-rotation in the present invention is performed before encoding. Boariu teaches phase-rotating a encoded symbol, but does not teach phase-rotating before performing an encode and phase-rotating a partial symbol selected from the N input symbols. Accordingly, the rejection of claims 1 and 19 is incorrect.

Regarding the rejection of independent Claim 16, the Examiner noted "Applicant's Admitted Prior Art does not teach the receiver receiving for only three time intervals but teaches the receiver for eight time intervals, which would inherently include the three time intervals as claimed by Applicant." See Office Action, p. 7. The Examiner further states "The symbol arranger and reception antenna would be inherent to one skilled in the art (as disclosed by APA) for receiving the symbols over the three time intervals. Uysal et al. further discloses wherein path gains are computed for M paths, thus inherently teaching applicant's channel estimator." See Office Action, bottom of page 7. Again, the Examiner invoked the inherency doctrine to fill the pronounced difference between the

prior art and the present invention. Again, the Examiner failed to provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied art. See MPEP 2112 (IV).

In addition, claim 16 is amended to add the feature of claim 17 to more clearly claim phase-rotation. The arguments as set forth above with respect to the rejections of claims 1 and 19 equally apply to Claim 16.

The Examiner acknowledged that Applicant's Admitted Prior Art does not teach detecting three symbols having a minimum metric value, but offers no prior art reference that reads over the present invention.

The Examiner then remarked "Though Uysal et al. does not teach a receiver, he does teach the method of applicant's receiver in his wireless communications scenario." See Office Action, p. 7. In all 35 USC §103 rejections, the Examiner bears the initial burden of factually supporting a prima facie conclusion of obviousness. To establish a prima facie case of obviousness under 35 U.S.C. §103(a) based upon a combination of references, the cited combination of references must disclose, teach or suggest all elements/features/steps of the claim at issue. Here, the Examiner admits that the prior art does not disclose, teach or suggest a receiver. Therefore, the Examiner fails to establish a prima facie case of obviousness with respect to Claim 16. Accordingly, the rejection is improper and must be withdrawn.

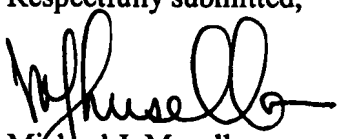
Regarding the double patenting rejection of Claims 12-13, the Examiner cites Claims 1, 2 and 10 of co-pending Application No. 10/692,896, which corresponds to Publication No. 2004/0137864. The cited Application was filed on October 24, 2003 whereas this application being examined was filed on October 23, 2003. Applicant, therefore, believes that the Examiner should withdraw the rejection and allow this application to issue without a terminal disclaimer if this rejection is the only rejection remaining in this application because it is the earlier-filed Application.

Claims 2, 4-11, 13-15, 18 and 20 are dependent claims; accordingly, since the above arguments place the independent claims into condition for allowance, then these dependent

claims will also be in condition for allowance.

Accordingly, all of the claims pending in the Application, namely, Claims 1-20 are believed to be in condition for allowance. Should the Examiner believe that a telephone conference or personal interview would facilitate resolution of any remaining matters, the Examiner may contact Applicant's attorney at the number given below.

Respectfully submitted,



Michael J. Musella
Reg. No. 39,310
Attorney for Applicant

THE FARRELL LAW FIRM, PC
333 Earle Ovington Blvd.
Uniondale, New York 11553
Tel: (516) 228-3565
Fax: (516) 228-8475

MJM/EC/mk